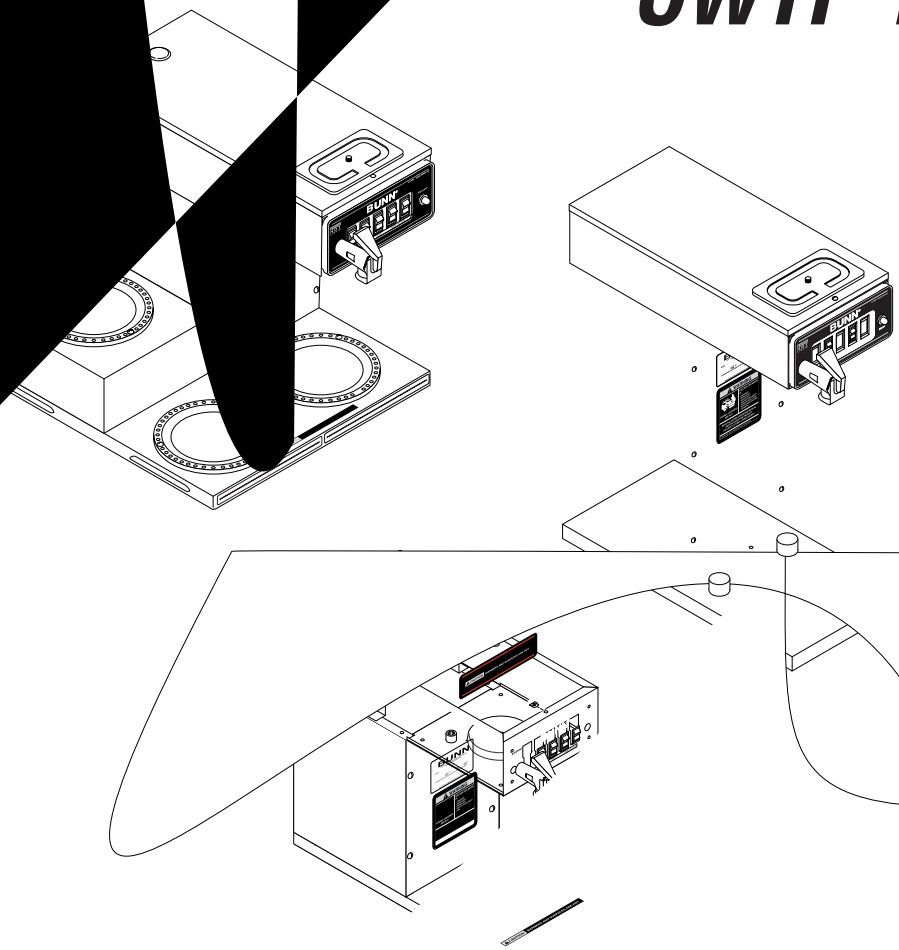
BUNN

CWTF-MV
CWTF-APS-MV
CWTF-TS-MV
CWTF-TSR-MV



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INTRODUCTION

This equipment will brew a half-gallon batch of coffee into an awaiting dispenser. It can be easily configured for 120V 15 amp, 120V 20 amp, 120/208V 20 amp or 120/240V 20 amp. The brewer has a hot water faucet for allied beverage use. It is only for indoor use on a sturdy counter or shelf.

WARRANTY

Bunn-O-Matic Corp. ("Bunn") warrants the equipment manufactured by it to be commercially free from defects in material and workmanship existing at the time of manufacture and appearing within one year from the date of installation. In addition:

1.) Bunn warrants electronic circuit and/or control boards to be commercially free from defects in material and workmanship for two years from the date of installation.

2.) Bunn warrants the compressor on refrigeration equipment to be commercially free from defects in material and workmanship for two years from the date of installation.

3.) Bunn warrants that the grinding burrs on coffee grinding equipment will grind coffee to meet original factory screen sieve analysis for three years from date of installation or for 30,000 pounds of coffee, whichever comes first.

This warranty does not apply to any equipment, component or part that was not manufactured by Bunn or that, in Bunn's judgement, has been affected by misuse, neglect, alteration, improper installation or operation, improper maintenance or repair, damage or casualty.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF EITHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The agents, dealers or employees of Bunn are not authorized to make modifications to this warranty or to make additional warranties that are binding on Bunn. Accordingly, statements by such individuals, whether oral or written, do not constitute warranties and should not be relied upon.

The Buyer shall give Bunn prompt notice of any claim to be made under this warranty by telephone at (217) 529-6601 or by writing to Post Office Box 3227, Springfield, Illinois, 62708-3227. If requested by Bunn, the Buyer shall ship the defective equipment prepaid to an authorized Bunn service location. If Bunn determines, in its sole discretion, that the equipment does not conform to the warranty, Bunn shall repair the equipment with no charge for parts during the warranty period and no charge for labor by a Bunn Authorized Service Representative during the warranty period. If Bunn determines that repair is not feasible, Bunn shall, at its sole option, replace the equipment or refund the purchase price for the equipment.

THE BUYER'S REMEDY AGAINST BUNN FOR THE BREACH OF ANY OBLIGATION ARISING OUT OF THE SALE OF THIS EQUIPMENT, WHETHER DERIVED FROM WARRANTY OR OTHERWISE, SHALL BE LIMITED, AS SPECIFIED HEREIN, TO REPAIR OR, AT BUNN'S SOLE OPTION, REPLACEMENT OR REFUND.

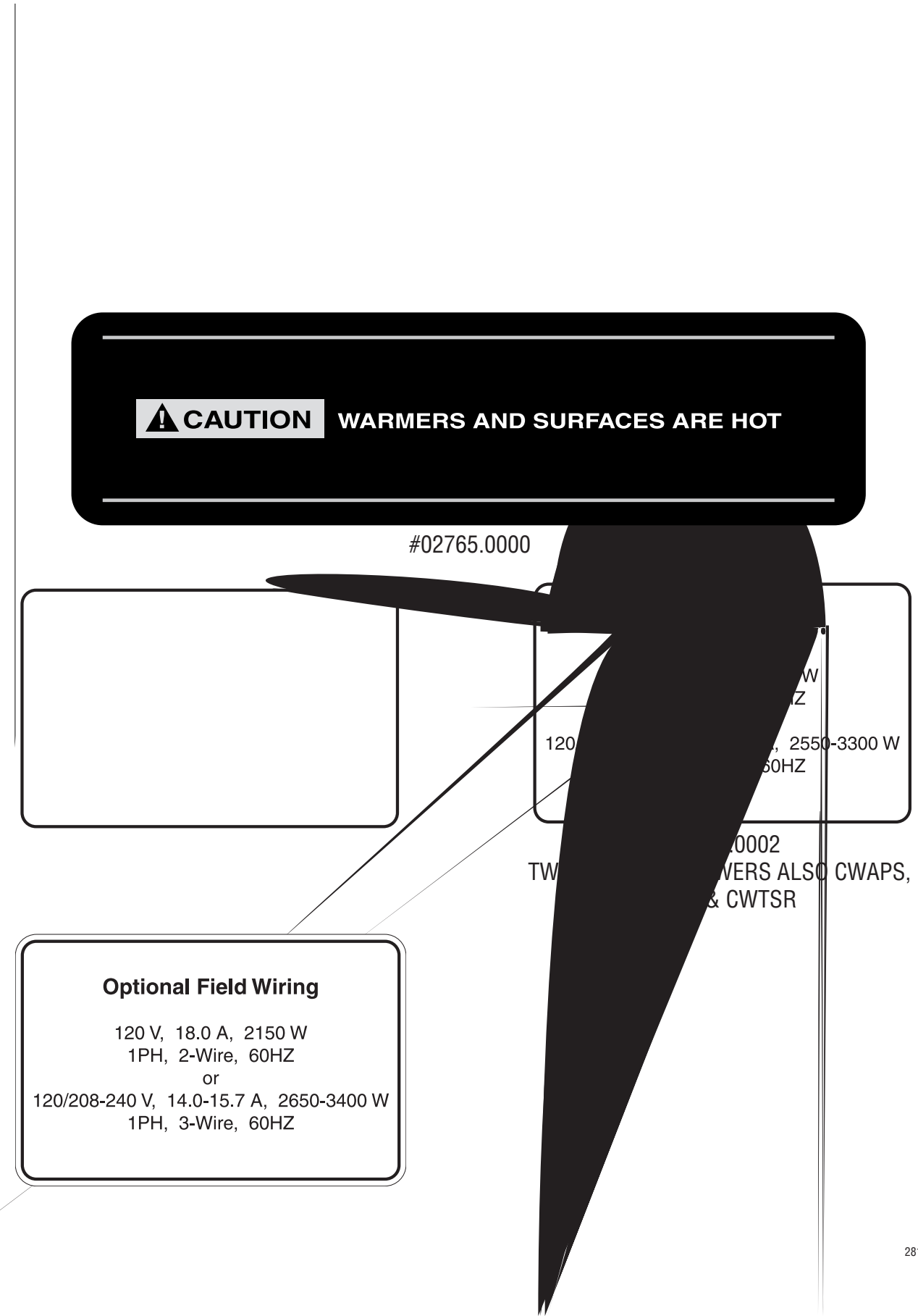
In no event shall Bunn be liable for any other damage or loss, including, but not limited to, lost profits, lost sales, loss of use of equipment, claims of Buyer's customers, cost of capital, cost of down time, cost of substitute equipment, facilities or services, or any other special, incidental or consequential damages.

USER NOTICES

Carefully read and follow all notices in this manual and on the equipment. All labels on the equipment should be kept in good condition. Replace any unreadable or damaged labels.

⚠ CAUTION WARMERS AND SURFACES ARE HOT

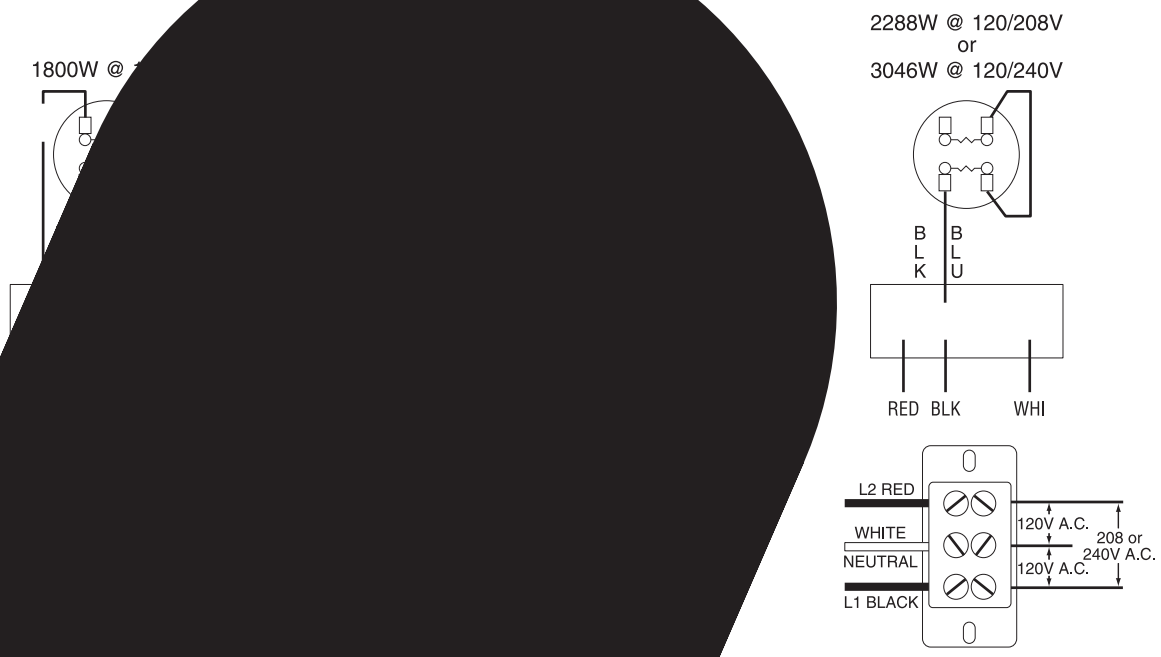
#12364.0000


CAUTION
WARMERS AND SURFACES ARE HOT
#02765.0000
Optional Field Wiring
120 V, 18.0 A, 2150 W
1PH, 2-Wire, 60HZ
or
120/208-240 V, 14.0-15.7 A, 2650-3400 W
1PH, 3-Wire, 60HZ
28182 021500

ELECTRICAL REQUIREMENTS

CAUTION - The brewer must be disconnected from the power source until specified in *Initial Set-Up.*

TANK HEATER
TERM[illegible]G DIAGRAM (C MODELS)



[illegible]OCK DIAGRAM

Requires 3-wire, grounded service rated 120/208 volts ac, 20 amp, single phase, 60 Hz.

[illegible]ge electronic components. This unit is factory wired for [illegible]ersion).

[illegible] and verify that the tank heater connections are connected as [illegible]

[illegible]rvice.

[illegible]he available on-site electrical service.

[illegible] color coding of each conductor at the electrical source.

[illegible]e brewer in the "OFF" (lower) position.

[illegible]prayhead.

[illegible]ar panel of the brewer.

[illegible]he desired electrical service to the field wiring terminal block and remove [illegible]fy the tank heater terminal block connections.

[illegible]s at the field wiring terminal block must agree with the tank heater terminal [illegible]n the above diagram.

[illegible]voltage at the field wiring terminal block. Replace the panel and top cover.

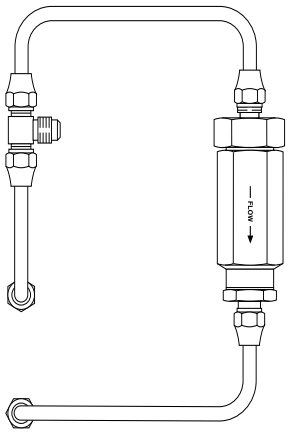
[illegible]p later be sure the brewer is disconnected from the power source. If plumbing [illegible]ewer is ready for *Initial Set-Up*.

PLUMBING REQUIREMENTS

These brewers must be connected to a cold water system with operating pressure between 20 and 90 psi (138 and 620 kPa) from a ½" or larger supply line. A shut-off valve should be installed in the line before the brewer. Install a regulator in the line when pressure is greater than 90 psi (620 kPa) to reduce it to 50 psi (345 kPa) . The water inlet fitting is ¼" flare.

NOTE - Bunn-O-Matic recommends ¼" copper tubing for installations of less than 25 feet and ⅜" for more than 25 feet from the ½" water supply line. A tight coil of copper tubing in the water line will facilitate moving the brewer to clean the countertop. Bunn-O-Matic does not recommend the use of a saddle valve to install the brewer. The size and shape of the hole made in the supply line by this type of device may restrict water flow.

This equipment must be installed to comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration (FDA).



1. Flush the water line and securely attach it to the tee.
2. Turn on the water supply.
3. Place an empty vessel beneath the faucet and lift the handle until water is dispensed.

INITIAL SET-UP

CAUTION - The brewer must be disconnected from the power source throughout the initial set-up, except when specified in the instructions.

1. Insert an empty funnel into the funnel rails.
2. Place an empty dispenser under the funnel.
3. Place the heater switch at the rear of the brewer in the "OFF" (lower) position and connect the brewer to the power source.
4. Connect the brewer to the power source, place the "ON/OFF" switch in the "ON" (upper) position, and momentarily press and release the start switch. Water will begin flowing into the tank. When water stops flowing into the tank, initiate a second and a third brew cycle. During the third brew cycle the tank will fill to its capacity and the excess will flow from the sprayhead, out of the funnel, and into the dispenser.
5. When the flow of water from the funnel stops, place the heater switch at the rear of the brewer in the “ON” (upper) position and wait approximately twenty minutes for the water in the tank to heat to the proper temperature. Some water will drip from the funnel during this time; this is due to expansion and should not occur thereafter.
6. Empty the dispenser, place the "ON/OFF" switch in the "ON" (upper) position, and momentarily press and release the start switch.
7. Place the "ON/OFF" switch in the "OFF" (lower) position after water has stopped flowing from the funnel, and let the water in the tank reheat to the proper temperature.
8. Empty the dispenser, place the "ON/OFF" switch in the "ON" (upper) position, and momentarily press and release the start switch. Check the water volume in the dispenser after water has stopped flowing from the funnel. It should be 64 ounces.
9. If not, adjust the brew timer as required. See *Adjusting Brew Volumes.* Start, and measure another brew cycle.
10. Repeat step 9 until 64 oz water volume is achieved.
11. The brewer is now ready for use in accordance with the coffee brewing instructions.

ADJUSTING BREW VOLUMES

CAUTION - Disconnect the power source from the brewer prior to the removal of any panel for the replacement or adjustment of any component.

NOTE: Prior to setting or modifying batch sizes, check that the brewer is connected to water supply, the tank is properly filled, and a funnel and dispenser are in place.

1. **Modifying batch sizes.** To modify a batch volume, first check that the SET/LOCK switch is in the "SET" position on the circuit board.

   To increase a batch size. Press and hold the START or BREW switch until three clicks are heard. Release the switch (Failure to release the switch within two seconds after the third click causes the volume setting to be aborted and previous volume setting will remain in memory) and press it again one or more times. Each time the switch is pressed, two seconds are added to the brew time period. Allow the brew cycle to finish in order to verify that the desired volume has been achieved.

   To decrease a batch size. Press and release the START or BREW switch once for every two-second interval to be removed from the total brew time period; then immediately press and hold down the START or BREW switch until three clicks are heard. Release the switch. (Failure to release the switch within two seconds after the third click causes the volume setting to be aborted and previous volume setting will remain in memory). Allow the brew cycle to finish in order to verify that the desired volume has been achieved.

2. **Setting batch sizes.** To set a batch volume, first check that the SET/LOCK switch is in the "SET" position on the circuit board. Press and hold the START or BREW switch until three distinct clicks are heard, and then release the switch. (Failure to release the switch within two seconds after the third click causes the volume

TROUBLESHOOTING

A troubleshooting guide is provided to suggest probable causes and remedies for the most likely problems encountered. If the problem remains after exhausting the troubleshooting steps, contact the Bunn-O-Matic Technical Service Department.

- Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel.
- All electronic components have 120 volt ac and low voltage dc potential on their terminals. Shorting of terminals or the application of external voltages may result in board failure.
- Intermittent operation of electronic circuit boards is unlikely. Board failure will normally be permanent. If an intermittent condition is encountered, the cause will likely be a switch contact or a loose connection at a terminal or crimp.
- Solenoid removal requires interrupting the water supply to the valve. Damage may result if solenoids are energized for more than ten minutes without a supply of water.
- The use of two wrenches is recommended whenever plumbing fittings are tightened or loosened. This will help to avoid twists and kinks in the tubing.
- Make certain that all plumbing connections are sealed and electrical connections tight and isolated.
- This brewer is heated at all times. Keep away from combustibles.

WARNING
- Exercise extreme caution when servicing electrical equipment.
- Unplug the brewer when servicing, except when electrical tests are specified.
- Follow recommended service procedures
- Replace all protective shields or safety notices

PROBLEM	PROBABLE CAUSE	REMEDY
Brew cycle will not start	1. No water	Water lines and valves to the brewer must be open.
	2. No power or incorrect voltage to the brewer	(A1) Check the terminal block for 120 volts across the black and white terminals on two wire 120 volt brewers. (A2) Check the terminal block for 120 volts ac across the red and white and the black and white terminals on 120/208V and 120/240V volt brewers. (B) Check circuit breakers or fuses.
	3. ON/OFF Switch	Refer to *Service* - ON/OFF Switch for testing. See page 18
	4. Start Switch	Refer to *Service* - Start Switch for testing procedures. See page 20

TROUBLESHOOTING (cont.)

PROBLEM	PROBABLE CAUSE	REMEDY
Brew cycle will not start (cont.)	5. Timer	Refer to *Service* - Timer for testing procedures. See page 26 or 27
	6. Solenoid Valve	Refer to *Service* - Solenoid Valve for testing procedures. See page 19
	7. Water strainer/flow control (.222 GPM)	(A) Direction of flow arrow must be pointing towards brewer. (B) Remove the strainer/flow control and check for obstructions. Clear or replace.
Water is not hot	1. Tank Heater Switch	Refer to *Service* - Tank Heater Switch for testing procedures. See page 23
	2. Limit Thermostat **CAUTION -** Do not eliminate or bypass limit thermostat. Use only replacement part #29329.1000	Refer to *Service* - Limit Thermostat for testing procedures. See page 17
	3. Control Thermostat	Refer to *Service* - Control Thermostat for testing procedures. See page 15
	4. Tank Heater(s)	Refer to *Service* - Tank Heater(s) for testing procedures. See page 21
	5. Fuse Holder and Fuse Assembly	Refer to *Service* -Fuse Holder and Fuse Assembly for testing procedures. See page 16
	6. Thermal Fuse	Refer to *Service* - Thermal Fuse for testing procedures. See page 25

TROUBLESHOOTING (cont.)

PROBLEM	PROBABLE CAUSE	REMEDY
Inconsistent beverage level in dispenser	1. Strainer/flow control (.222 GPM)	(A) Direction of flow arrow must be pointing towards the brewer. (B) Remove the strainer/flow control and check for obstruction. Clear or replace.
	2. Syphon System	The brewer must be level or slightly lower in front to syphon properly.
	3. Lime Build-up **CAUTION -** Tank and tank components should be delimed regularly depending on local water conditions. Excessive mineral build-up on stainless steel surfaces can initiate corrosive reactions resulting in serious leaks.	Inspect the tank assembly for excessive lime deposits. Delime as required.
	4. Water Pressure	The water pressure to the brewer must be at least 20 psi (138 kPa).
Consistently low beverage level in the dispenser	1. Timer	Refer to *Service* - Timer for adjusting procedures. See page 26 or 27
	2. Strainer/flow Control (.222 GPM)	(A) Direction of flow arrow must be pointing towards brewer. (B) Remove the strainer/flow control and check for obstructions. Clear or replace.
Spitting or excessive steaming	1. Lime Build-up **CAUTION -** Tank and tank components should be delimed regularly depending on local water conditions. Excessive mineral build-up on stainless steel surfaces can initiate corrosive reactions resulting in serious leaks.	Inspect tank assembly for excessive lime deposits. Delime as required.

TROUBLESHOOTING (cont.)

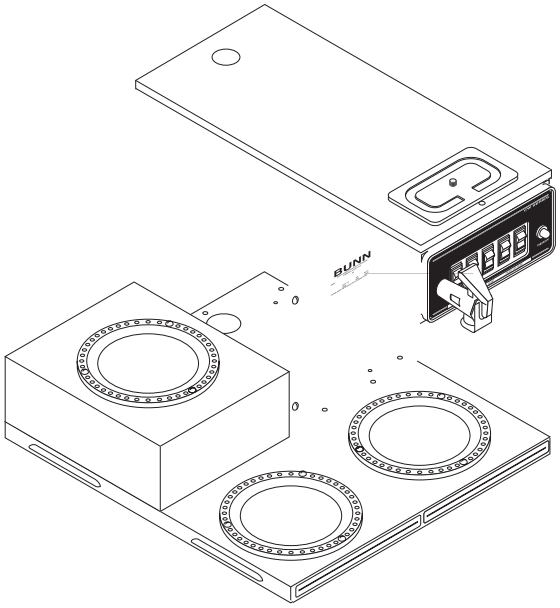
PROBLEM	PROBABLE CAUSE	REMEDY
Spitting or excessive steaming (cont.)	2. Control Thermostat	Refer to *Service* - Control Thermostat for testing procedures. See page 15
Dripping from sprayhead	1. Syphon System	The brewer must be level or slightly lower in front to syphon properly.
	2. Lime Build-up **CAUTION -** Tank and tank components should be delimed regularly depending on local water conditions. Excessive mineral build-up on stainless steel surfaces can initiate corrosive reactions resulting in serious leaks.	Inspect the tank assembly for excessive lime deposits. Delime as required.
	3. Solenoid Valve	Remove the solenoid valve and clear any obstructions. Rebuild or replace the valve if necessary. See page 19
Water flows into tank continuously (ON/OFF Switch "ON")	1. Timer	Refer to *Service* - Timer for testing procedures. See page 26 or 27
Water flows into tank continuously (ON/OFF Switch "OFF")	1. Solenoid Valve	Remove the Solenoid Valve and clean any obstruction. Rebuild or replace the valve if necessary. See page 19
Beverage overflows dispenser	1.Dispenser	The dispenser must be completely empty before starting a brew cycle.
	2. Timer	Refer to *Service* - Timer for testing procedures. See page 26 or 27
	3. Solenoid Valve	Remove the Solenoid Valve and clean any obstruction. Rebuild or replace the valve if necessary. See page 19

TROUBLESHOOTING (cont.)

PROBLEM	PROBABLE CAUSE	REMEDY
Weak beverage	1. Filter Type	BUNN® paper filters must be used for proper extraction.
	2. Coffee Grind	A fine or drip grind must be used for proper extraction.
	3. Sprayhead	A six-hole stainless steel sprayhead must be used for proper extraction.
	4. Funnel Loading	The BUNN® paper filter must be centered in the funnel and the bed of ground leveled by gentle shaking.
	5. Water Temperature	Place an empty funnel on an empty dispenser beneath the sprayhead. Initiate a brew cycle and check the water temperature immediately below the sprayhead with a thermometer. The reading should not be less than 195°F(91°C). Adjust the control thermostat to increase the water temperature. Replace if necessary.
Dry coffee grounds remain in the funnel	1. Funnel Loading	The BUNN® paper filter must be centered in the funnel and the bed of grounds leveled by gently shaking.
Brewer is making unusal noises	1. Solenoid	The nut on the solenoid must be tight or it will vibrate during operation.
	2. Plumbing Lines	Plumbing lines should not be resting on the counter top.
	3. Water Supply	(A) The brewer must be connected to a cold water line. (B) Water pressure to the brewer must not exceed 90 psi (620 kPa). Install a regulator if necessary to lower the working pressure to approximately 50 psi (345 kPa).

TROUBLESHOOTING (cont.)

PROBLEM	PROBABLE CAUSE	REMEDY
Brewer is making unusal noises (cont.)	4. Tank Heater(s)	Remove and clean lime off the tank heater(s). See page 21
Low beverage serving temperature (CWTF Only)	1. Warmer	Refer to *Service* - Warmer element for testing procedures. See page 29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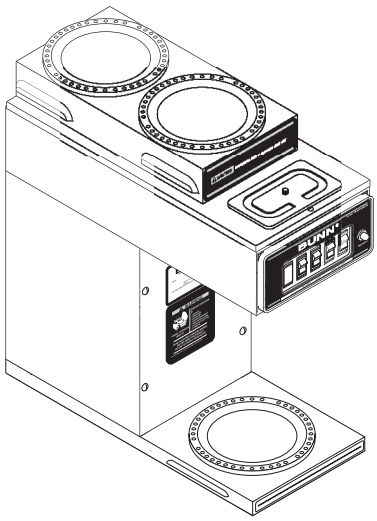
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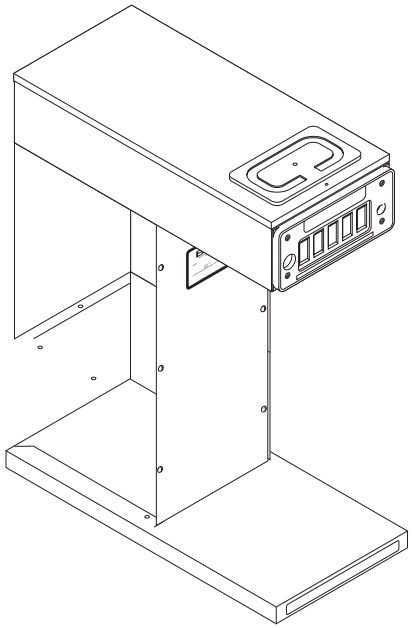

SERVICE (cont.)

CONTROL THERMOSTAT

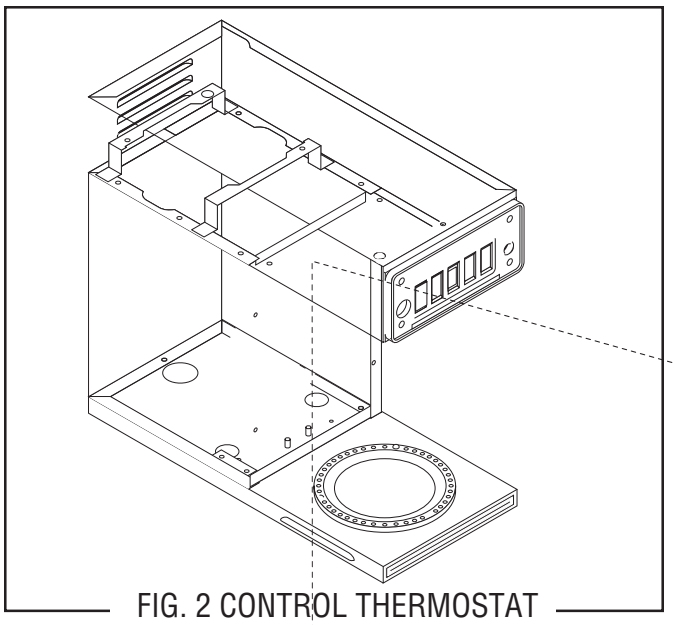

FIG. 2 CONTROL THERMOSTAT

Location:

The control thermostat is located inside the trunk on the upper left side of the component bracket.

Test Procedures:

1. Disconnect the brewer from the power source.
2. Locate the blue wire on the control thermostat.
3. With a voltmeter, check the voltage across the blue wire on the control thermostat and the white insert on two wire 120 volt, three wire120/208 volt or 120/240 volt terminal block. Connect the brewer to the power source. The indication must be:
   a) 120 volts ac for two wire 120 volt models.
   b) 120 volts ac for three wire 120/208 volt models or 120/240 volt models.
4. Disconnect the brewer from the power source.

If voltage is present as described, proceed to #5.
If voltage is not present as described, refer to the *Wiring Diagrams* and check the brewer wiring harness.

5. Locate the black wire on the control thermostat.
6. Gently remove the capillary bulb and grommet from the tank.
7. With a voltmeter, check the voltage across the black wire of the control thermostat and the white insert on two wire 120 volt model, three wire 120/208 volt model or three wire 120/240 volt model terminal blocks when the control thermostat is turned fully clockwise. Connect the brewer to the power source. The indication must be:
   a) 120 volts ac for two wire 120 volt models.
   b) 120 volts ac for three wire 120/208 volt models or 120/240 volt models.
8. Disconnect the brewer from the power source.

If voltage is present as described, reinstall the capillary tube into the tank to the line 4.5" above the bulb, the control thermostat is operating properly.
If voltage is not present as described, replace the thermostat.

Removal and Replacement:

1. Remove wires from control thermostat.
2. Remove the thermostat capillary bulb by firmly pulling up on the capillary at the tank lid. This will disengage the grommet from the tank lid.
3. Remove the one #8-32 screw securing the control thermostat to the component bracket in the trunk.
4. Slide the grommet to the line 4.5" above the bulb on the new capillary tube.
5. Insert the capillary bulb through the hole in the tank lid and press the grommet firmly and evenly so that the groove in the grommet fits into the tank lid.
6. Carefully bend the capillary tube so that the tube and bulb inside the tank are in the vertical position.

NOTE - The capillary tube must be clear of any electrical termination and not kinked.

7. Using one #8-32 screw secure the control thermostat to the upper left side of the component bracket inside the trunk.
8. Refer to Fig. 3 when reconnecting the wires.
9. Adjust the control thermostat as required.

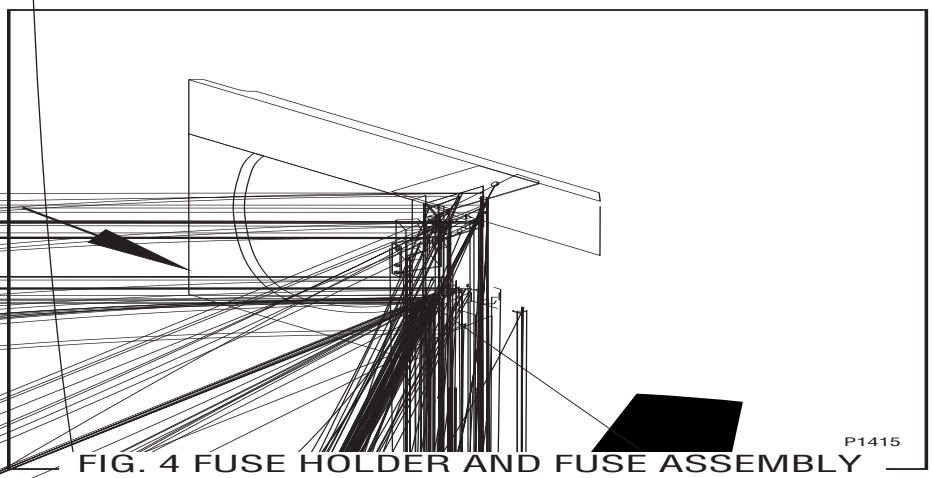

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FIG. 4 FUSE HOLDER AND FUSE ASSEMBLY

Location:
The fuse holder and fuse assembly is located on the left rear side of the breaker.

Test Procedures:
1. Disconnect the breaker from the power source.
2. Remove the cap from the fuse holder and remove the fuse.
3. With an ohmmeter, check for continuity through the fuse.

If continuity is present as described, reinstall the fuse, the fuse is operating properly.
If continuity is not present as described, replace the fuse.

Removal and Replacement:
1. Remove the cap from the holder.
2. Remove fuse from the fuse holder and discard.
3. Install new 20 amp fuse in the holder.
4. Reinstall fuse holder cap.

LIMIT THERMOSTAT

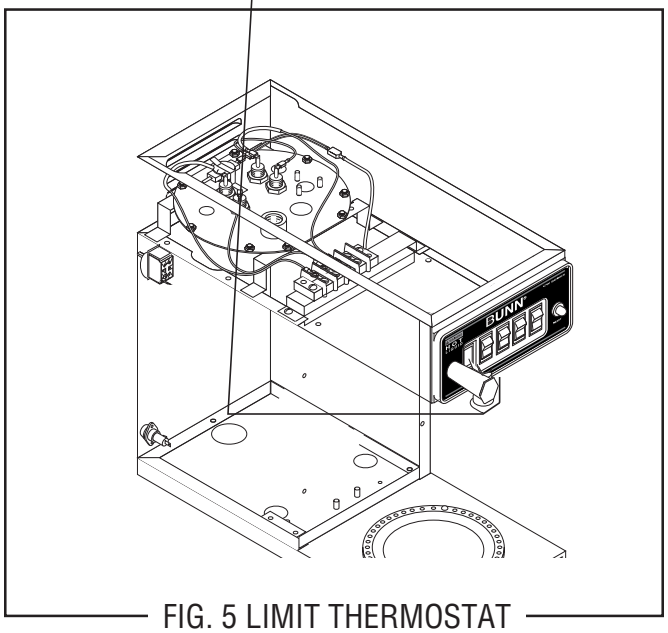


FIG. 5 LIMIT THERMOSTAT

Location:

The limit thermostat is located inside the rear of the hood on the center rear of the tank lid.

Test Procedures:

1. Disconnect the brewer from the power source.
2. Disconnect the blue and black wires from the limit thermostat.
3. With an ohmmeter, check for continuity across the limit thermostat terminals.

If continuity is present as described, the limit thermostat is operating properly.
If continuity is not present as described, replace the limit thermostat.

SERVICE (cont.)

ON/OFF SWITCHES

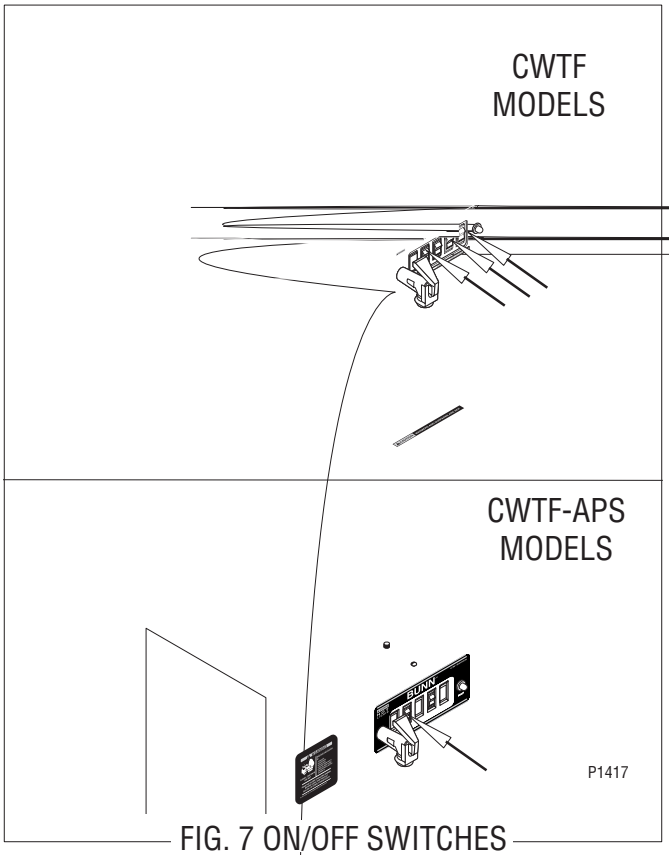


FIG. 7 ON/OFF SWITCHES

Location:

The ON/OFF switches are located on the front of the hood.

Test Procedure:

1. Disconnect the brewer from the power source.
2. Viewing the switch from the back remove the white wire from the upper terminal and the black wire from the center terminal.
3. With a voltmeter, check the voltage across the white wire and the black wire. Connect the brewer to the power source. The indication must be:
   a) 120 volts ac for two wire 120 volt models.
   b) 120 volts ac for three wire 120/208 volt or 120/240 volt models.
4. Disconnect the brewer from the power source.

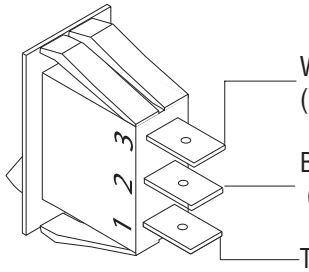
If voltage is present as described, reconnect the white wire and proceed to #5.
If voltage is not present as described, refer to the *Wiring Diagram* and check the brewer wiring harness.

5. With the black wire removed, remove the wire from the lower terminal.
6. Check for continuity across the center and lower terminal with the switch in the "ON" (upper) position. Continuity must not be present when the switch is in the "OFF" (lower) position.

If continuity is present as described, reconnect the black wire to the center terminal and the remaining wire to the lower terminal.
If continuity is not present as described, replace the switch.

Removal and Replacement:

1. Remove the wires from the switch terminals.
2. Turn off water supply and remove faucet.
3. Remove front end cap.
4. Compress the clips inside the hood and gently push the switch through the opening.
5. Push the new switch into the opening and spread the clips to hold switch in the hood.
6. Reinstall front end cap.
7. Reinstall faucet and connect brewer to the water supply.
8. Refer to Fig. 8 when reconnecting the wires.



Connect wire to Terminal #1 as follows:

CWTF Models:

Lower Warmer	WHI/RED
Front Warmer	BRN/BLK
Rear Warmer	VIO

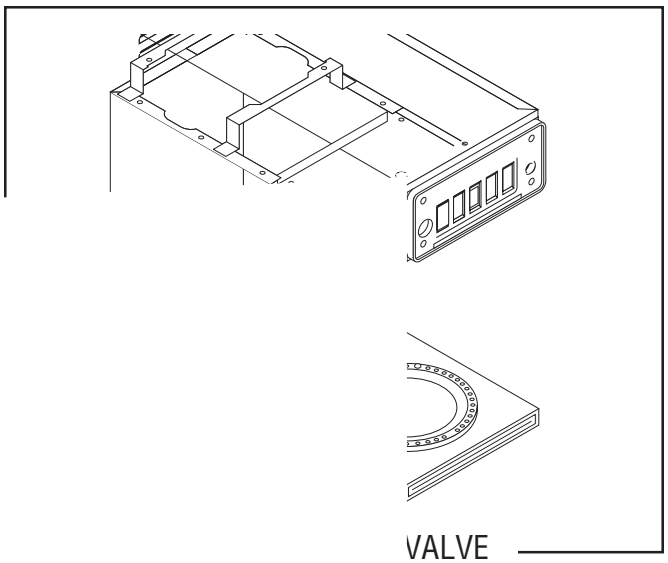
CWTF-APS, TS & TSR Models:

Start Switch	WHI/RED

FIG. 8 ON/OFF SWITCH TERMINALS

SERVICE (cont.)

SOLENOID VALVE



VALVE

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the solenoid valve.
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20/208 volt and 120/

the power source

d, proceed to #5
ribed, refer to *Wiring*
ng harness.

5. Check for
   terminals.

he solenoid valve coil

If continuity is present as de ribed, reconnect the wires from the timer.
If continuity is not present as de d, replace the solenoid valve

SERVICE (cont.)

START SWITCH

SERVICE (cont.)

TANK HEATERS

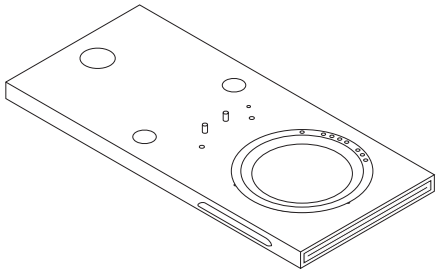

FIG. 13 TANK HEATERS

Location:

The tank heaters are located inside the tank and secured to the tank lid.

Test Procedures:

1. Disconnect the brewer from the power supply.
2. With a voltmeter, check the tank heater voltage across blue and white wires on 120 volt 15 amp version, black and white wires on 120 volt 20 amp version or black and blue wires on 120/208 volt or 120/240 volt version at the tank heater terminal block. Connect the brewer to the power source. The indication must be:
   a) 120 volts ac for two wire 120 volt 15 and 20 amp models.
   b) 208 volts ac for three wire 120/208 volt models.
   c) 240 volts ac for three wire 120/240 volt models.
3. Disconnect the brewer from the power source.

If voltage is present as described, proceed to #4
If voltage is not present as described, refer to the *Wiring Diagrams* and check wiring harness.

4. Disconnect the black, blue and white leads from the terminals of each tank heater.
5. Check for continuity across the terminals of each tank heater.

SERVICE (cont.)

TANK HEATERS (cont.)

17. Refer to Fig.14 when reconnecting the tank hea
wires.

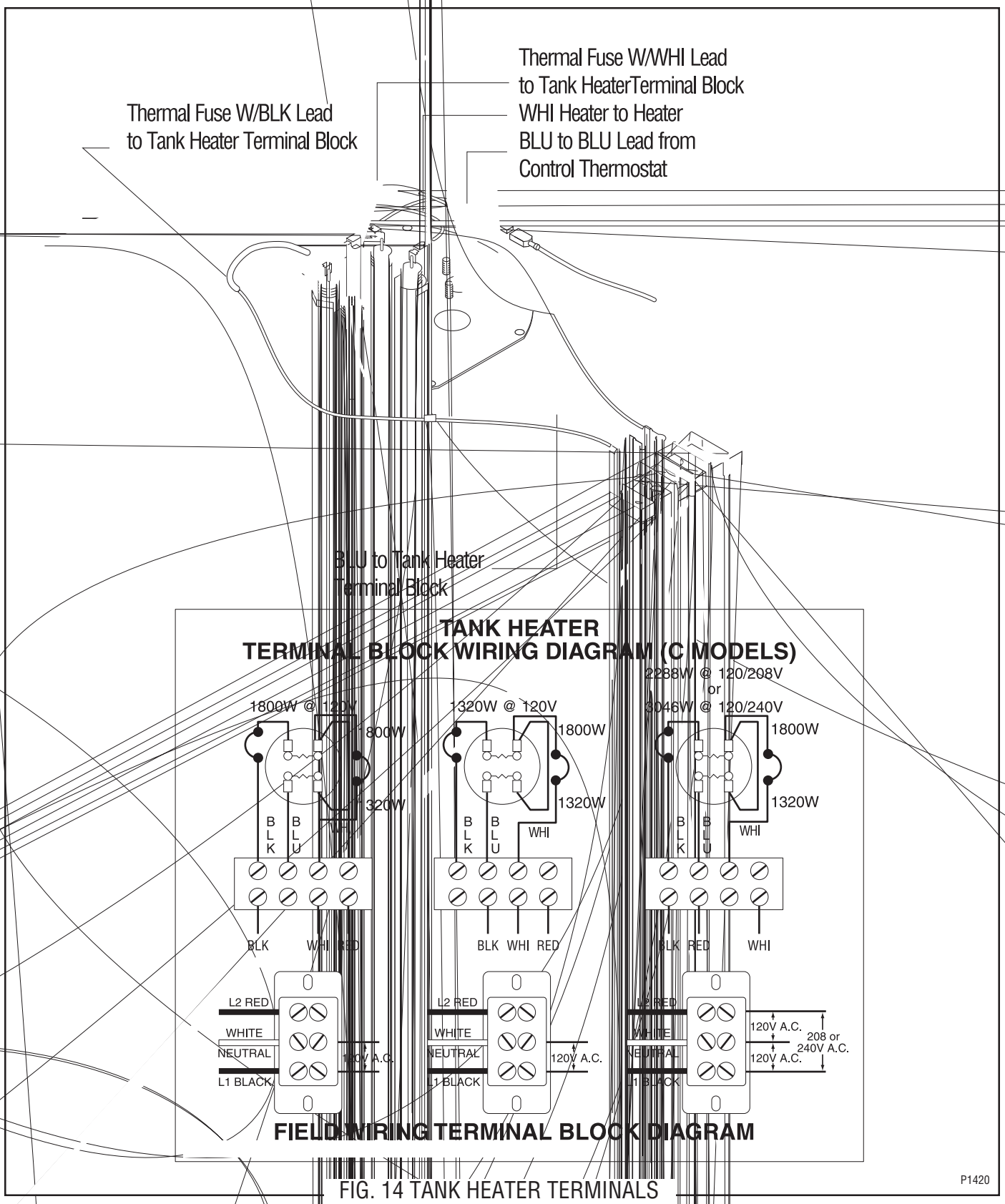

FIG. 14 TANK HEATER TERMINALS

28182 021500

SERVICE (cont.)
TANK HEATER SWITCH

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Location:

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5. Check for continuity between the black wire removed from the limit thermostat and the black insert on the terminal block, with the tank heater switch in the "ON" (upper) position. Continuity should not be present in the "OFF" (lower) position.

If continuity is present as described, the tank heater

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SERVICE (cont.

TANK HEATER SWITCH (cont.)

15. Reconnect the two black wires to the tank heater switch terminals.
16. Set tank assembly inside the hood on mounting brackets and secure with two #8-32 screws.
17. Reconnect the wires to the limit thermostat and tank heaters. Refer to *Limit Thermostat* and *Tank Heater* sections in this manual when reconnecting wires.
18. Reinstall the faucet tube and reconnect the water supply tube to the coil assembly.
19. Secure the sprayhead tube to the hood using hex nut.
20. Install sprayhead.
21. Install fill basin, inlet gasket and secure to tank lid with tank inlet fitting.
22. Carefully install water fill tube into the back of the fill basin.
23. Reconnect and turn on the incoming water supply.
24. Refer to Fig. 16 when reconnecting the wires.

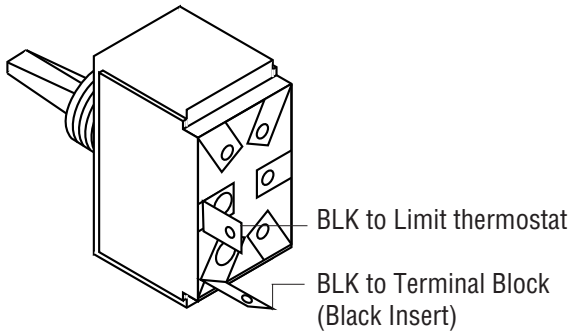
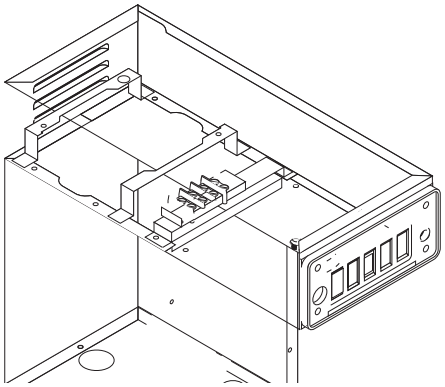


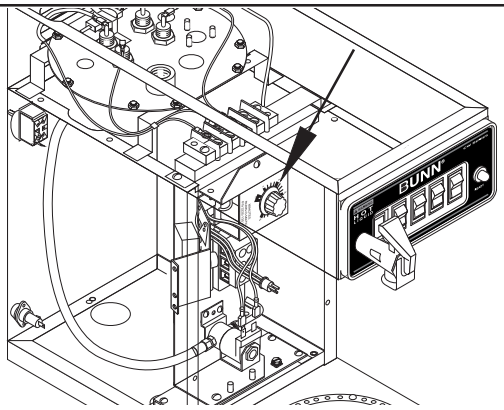
FIG. 16 TANK HEATER SWITCH TERMINALS

THERMAL FUSES



SERVICE (cont.)

TIMER (Early Models)



EARLY MODELS

P2227.40

FIG. 19 TIMER

Location:

The timer is located inside the front of the trunk on the upper right side of component bracket.

Test Procedure.

1. Disconnect the brewer from the power source.
2. Disconnect the polarized, three pin connector from the brewer wiring harness and rotate the brew timer dial fully counterclockwise.
3. With a voltmeter, check the voltage across sockets P2 & P3 (white and black wires) of the female connector when the "ON/OFF" is in the "ON" (upper) position. Connect the brewer to the power source. The indication must be:
   a) 120 volts ac for two wire 120 volt models.
   b) 120 volts ac for three wire 120/208 volt and 120/240 volt models.
4. Disconnect the brewer from the power source.

If voltage is present as described, proceed to #5.
If voltage is not present as described, refer to the *Wiring Diagrams* and check the brewer wiring harness.

5. With a voltmeter, check the voltage across the sockets P1 & P2 (blue and white wires) of the female connector when the "ON/OFF" switch is in the "ON" (upper) position and start switch pressed. Connect the brewer to the power source. The indication must be:
   a) 120 volts ac for two wire 120 volt models.
   b) 120 volts ac for three wire 120/208 volt models and 120/240 volt models.
6. Disconnect the brewer from the power source.
7. Reconnect the three pin connector from main wiring harness to the timer.

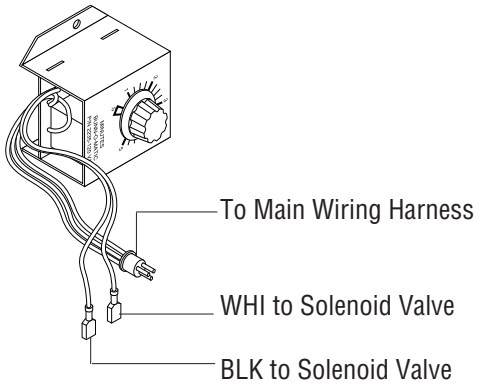
If voltage is present as described, proceed to #8
If voltage is not present as described, refer to *Wiring Diagrams* and check the brewer wiring harness.

8. Disconnect the black and white wires to the solenoid.
9. With a voltmeter, check the voltage across the black and white wires when the "ON/OFF" switch is in the "ON" (upper) position and the "START" switch is pressed to the "START" (lower) position and released. Connect the brewer to the power source. The indication must be:
   a) 120 volts ac for approximately 20 seconds for two wire 120 volt models.
   b) 120 volts ac for approximately 20 seconds for three wire 120/208 volt and 120/240 volt models.

If voltage is present as described, the brew timer is operating properly. Reset the timer dial as required, to obtain the desired brew volume.
If voltage is not present as described, replace the timer.

Removal and Replacement:

1. Remove all wires from the timer.
2. Remove the one #8-32 screw securing timer to component bracket.
3 Install new timer circuit board as described in *Late Model Digital Timer* section on the following pages.
4. Refer to Fig. 22 when reconnecting the wires.
5. Install the Timer Setting decal, provided with the replacement timer kit, to the rear of the front access panel, beneath the schematic.
5. Adjust the timer as required. Refer to *Late Model Digital Timer Section* on the following pages.



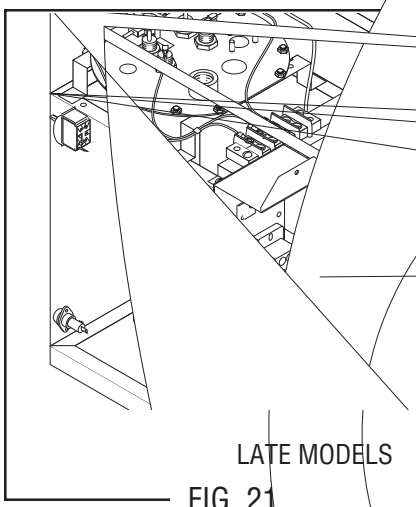
EARLY MODELS

P1136

FIG. 20 TIMER TERMINALS

SERVICE (cont.)

DIGITAL TIMER (Late Models)



LATE MODELS

FIG. 21

Location

The timer is located inside the front of the trunk on the upper right side of the compartment.

To remove:

NOT for Resale

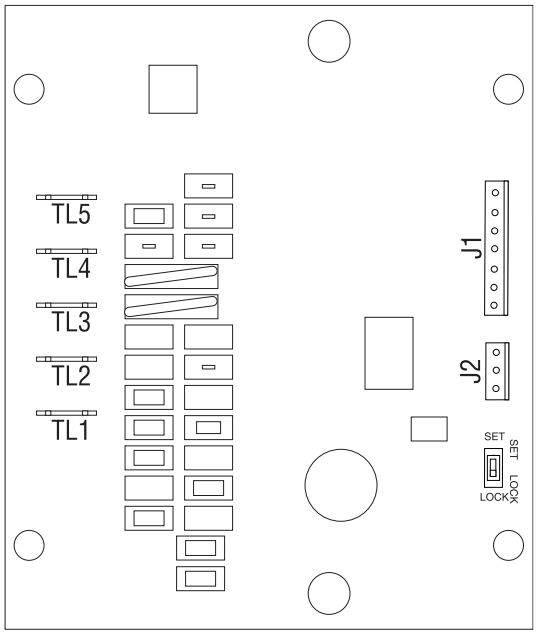
To increase a brew volume, place the ON/OFF switch in the "ON" position, press and hold the START switch until three clicks are heard. Release the switch and press it again one or more times. (Failure to release the switch within two seconds after the third click causes the volume setting to be aborted and previous volume setting will remain in memory.) Each time the switch is pressed, two seconds are added to the brew time period. Allow the brew cycle to finish in order to verify that the desired volume has been achieved.

To decrease a brew volume, place the ON/OFF switch in the "ON" position, press and release the START switch once for every two-second interval to be removed from the total brew time period; then immediately press and hold down the START switch until three clicks are heard. Release the switch. (Failure to release the switch within two seconds after the third click causes the volume setting to be aborted and previous volume setting will remain in memory). Allow the brew cycle to finish in order to verify that the desired volume has been achieved.

2. **Setting brew volumes.** To set a brew volume, first check that the SET/LOCK switch is in the "SET" position on the circuit board. Place the ON/OFF switch in the "ON" position, press and hold the START switch until three distinct clicks are heard and then release the switch. (Failure to release the switch within two seconds after the third click causes the volume setting to be aborted and previous volume setting will remain in memory.)
View the level of the liquid being dispensed. When the desired level is reached, turn the ON/OFF switch to "OFF".

NOTE: Several ounces of water will continue to syphon from the tank after turning the switch "OFF". The brewer remembers this volume and will continue to brew batches of this size until the volume setting procedure is repeated.
NOTE: When brewing coffee, volume will decrease due to absorption by the coffee grounds.

3. **Setting programming disable feature.** If it becomes necessary to prevent anyone from changing brew time once programmed, you can set the SET/LOCK switch to the "LOCK" position. This will prevent any further programming until switch is once again put into the "SET" position.



BLU/BLK wire from TL5 to P1
WHI/GRN wire from TL4 to Solenoid
WHI/BLU wire from TL3 to Solenoid
WHI wire from TL2 to P2
BLK wire from TL1 to P3

P2037

FIG. 22 DIGITAL TIMER WIRING

SERVICE (cont.)
WARMER ELEMENT(S)(CWTF MODELS ONLY)

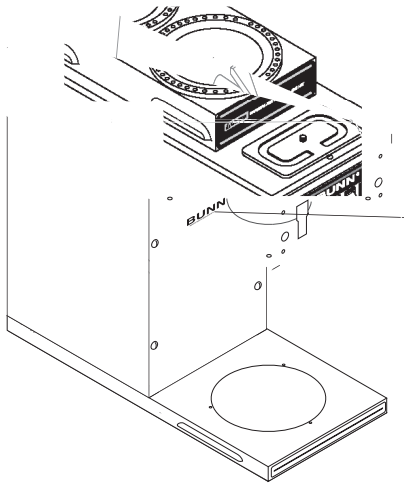


FIG. 23 WARMER ELEMENTS

Location:

The warmer elements are located under the warmer plates.

Test Procedures:

1. Disconnect the brewer from the power source.
2. With a voltmeter, check voltage across the white wire from the terminal block and the wire from the "ON/OFF" switch to the warmer element with the "ON/OFF" switch in the "ON" (upper) position. The indication must be:
   a) 120 volts ac for two wire 120 volt models.
   b) 120 volts ac for three wire 120/208 volt and 120/240 volt models.
4. Disconnect the brewer from the power source.

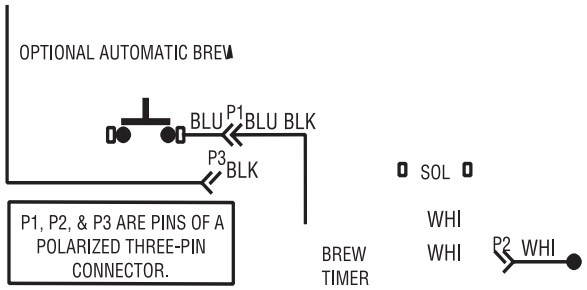
If voltage is present as described, proceed to #5.
If voltage is not present as described, refer to *Wiring Diagrams* and check brewer wiring harness.

5. Check the continuity across the two terminals on the warmer element.

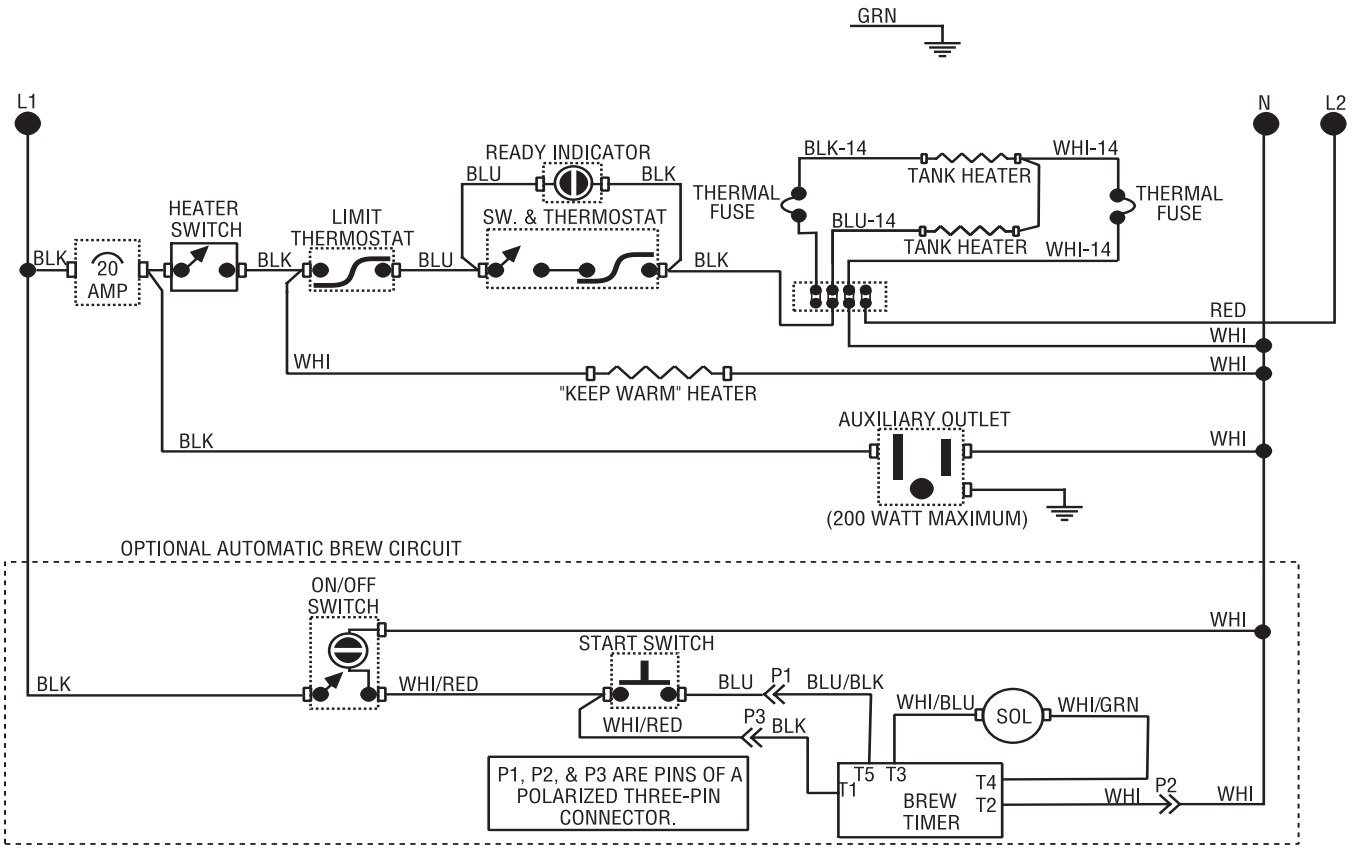
If continuity is present as described, reconnect the wires on the warmer element.
If continuity is not present as described, replace the warmer element.

Removal and Replacement:

1. Remove the three #4-40 screws securing the warmer assembly to the brewer.
2. Lift the warmer assembly from the brewer.
3. Disconnect the two wires from the warmer element terminals.
4. Remove the two #8-32 nuts securing the warmer element to the warmer plate.
5. Securely install new warmer element.
6. Reconnect the two wires to warmer element terminals.
7. Securely install warmer assembly on the brewer.
8. Refer to Fig. 24 when reconnecting the wires.


OPTIONAL AUTOMATIC BREW
BLU
P1
BLU BLK
P3
BLK
SOL
WHI
WHI
P2
WHI
P1, P2, & P3 ARE PINS OF A POLARIZED THREE-PIN CONNECTOR.
BREW TIMER

SCHEMATIC WIRING DIAGRAM FOR CWT-APS MV, CWTF-APS MV, CWTF-TS MV, CWTF-TSR MV



120/208 VOLTS AC 3 WIRE
120/240 VOLTS AC 3 WIRE
120 VOLTS AC 2 WIRE
SINGLE PHASE